(13) The Internet as a mode of retrieving of academic information: a teaching model

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Extended Abstract

1. Problem statement

Conducting a search via the Internet can be time-consuming and frustrating for the non-expert. This is not surprising given the enormous amount of information available on the World Wide Web and the different ways it is stored and retrieved.

The worst reality in using the Internet is "teaching" others how to use it effectively. It is difficult to teach what is being searched or browsed – a single web page, a series of pages or a database of links. In addition to that, as more powerful protocols replace older ones, whole areas of curricula can quickly become obsolete. As a result, knowledge of the average Internet user will be inadequate, while the complexity of the Internet is going up. This leads to Web interface becoming unfriendly and unusable.

Clearly, there is a problem with the Internet. There is very little help for the majority of Internet users who are new to the place. They seem to be lost in space and do not know where they are. And even the more experienced (among us) have trouble keeping up.

2. Hypothesis - a teaching model

The study argues that all knowledge related to the Internet takes place as people construct their own meaning from their own experiences, backgrounds, and attitudes. This approach makes learning more relevant to students as this gets imbedding to the real, "authentic" situations. This helps them learn to solve problems, think critically, and finally to learn how to learn. A teaching model therefore, is simplified with the use of analogies. Analogies can work on multiple levels (i). as a representation of something, (ii.) as a means to transfer that representation and (iii). as experimental feedback/reinforcement. The study hypothesizes that "analogies are a means by which to compare something known to something unknown and analogies have strong transference power". The study uses an analogy to show how having a conceptual understanding makes it easier for people to meet new experiences and ideas and generally make sense of the Internet. As a whole, the study tried to relate new concepts with concepts that people already are comfortable with.
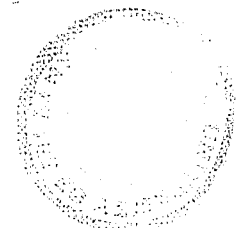
3. Aim of the study

This study is carried out with two fundamental questions in mind: (i) how well are the students learning? and (ii) how effectively is teaching? The study examines the possibilities of incorporating different related areas in order to build a model for teaching information retrieval via the Internet.

4. Research objectives

1. Identify the current problems that user having while searching academic information on the Internet.
2. Develop a series of analogies in connection with the Internet-search concepts.
3. Construct a teaching model on improving the current Internet search system. And
4. Test the model with students who attend the three workshops conducted at the Elementary Computer Lab, OUSL.

5. Research methodology

The methodology deals with two phases. (i) diagnostic, in which problems are analyzed and hypotheses developed; and (ii) therapeutic, in which hypotheses are tested in a day school situation.

5.1 Stages of research

This research is based on a case study. Necessary information is collected using surveys. It has five major stages that define users and usability requirements, evaluating prototype, teaching techniques, feedback, suggestions and evaluation.

In the first stage, the designer identifies who the end-users of the system would be, understand the relevant characteristics of end-users and specify usability requirements for the system. Furthermore, the designer discusses on a conceptual **model**, human information-processing **model**, capabilities and limitations of human. Besides that, design criteria for the model is also discussed.

Conceptual **model** is the generic term that describes the various ways in which different people understand systems. Primarily these consist of the way users conceptualize and understand the system and the way designers conceptualize and view the system. An important consideration of conceptual models is the relationship between designer's models (the design **model**) and user's **mental** models (the user's **model**).

A model design, then, would (1) use analogy as a part of the design model to convey conceptual knowledge to connect the user's mental models, (2) stress group work such as cooperative learning, use of open-ended questions, and teacher observation.

5.1.1 a case study

"Introduction to the Internet," one-six optional adjunct course, was first offered at the Department of social studies, the Open University of Sri Lanka for B.A. degree programme in Social sciences in 2000. Its goal is to provide adult novices with the concepts and skills necessary to use the Web, e-mail, and other Internet tools. The course is taught in a Windows computer lab with one computer for four students as well as one for the day school academic. The lab has a projection system to display the instructor's screen, and all the computers have direct network connections to the Internet.

5.1.2 Students' profile-evaluating prototype

We found that we had very different student constituencies in terms of experience, attitudes, abilities, needs, motivation, knowledge, and other factors.

Students are a diverse group, varying widely in age, prior computer experience, and educational backgrounds. Students are not exclusively but largely "matured students".

Many of these students are reluctant to use computer resources. They are commuters, they often have less access to such equipment and software, or have little time, given that they have to work and / or have demanding family responsibilities. On top of that, many students have learned a kind of math-type anxiety in dealing with what they think of as technology. Instructions are included in the model keeping theses factors in mind.

5.1.3 Teaching

i. General

The teaching is carried out in three, four-hour sessions. Typically we spend one hour of each session teaching Web skills and the other hour allow students to practice on line. One of the most striking characteristics of our teaching style is avoidance of lecturing. The main exception is the first session, which we began by surveying the participants about their goals and previous experience, and presenting a brief overview of the history of the Internet and some basic concepts of client-server computing. Within the first half-hour, we had begun to lead the group through hands-on exercises. Our subsequent presentation of conceptual

material was done almost entirely through responses to questions and especially through our interventions to resolve students' problems.

ii. Analogy as a teaching model

As a whole, the model is based on the users self-assessment on "if/then", or: "what do I already know that will help me here?" Analogies which participants *experience* were used on several levels (e.g., fun, comfortable, influential).

ii. The Web site

We demonstrated how to reach the Web site, explaining each step of the procedure as the students observe our actions on the projection screen. We then called on them to repeat the process themselves. Most students were able to do so, but inevitably several failed, receiving error messages or other unexpected results.

We used them as opportunities to demonstrate troubleshooting skills and to present or reinforce conceptual information. Asking the participant to describe the symptoms of the problem to the rest of the group, we identified its source--in the case of this exercise, often a simple typing error--and explained the often-cryptic error messages. An error reporting a failure to resolve a domain name led us to provide a brief explanation of the purpose and format of domain names. Then we suggested steps for recovering from the error (for example, canceling an error message and correcting a mistyped Web address).

We demonstrated that troubleshooting episodes are a normal part of using the Internet. While this method of instruction is less systematic than detailed, organized lecturing, in practice it allows students to construct and retain more reliable mental models.

6. Evaluation

Finally, model was tested with students who had attended the three workshops conducted at the elementary computer lab, OUSL. The results showed that there is moderately significant difference in retrieving the Internet-based academic information with using the model. At the end of the ten-hour course, most students reported that they felt confident in their ability to apply what they had learned and to continue to develop their skills on their own, using the study materials provided in the course as well as information they find on the Web.

7. Conclusion

The study claims the learners use Internal mental models to help them to interpret and incorporates their experiences, and then to build knowledge on the Internet. Adult educators can prepare students for this experience by helping them construct mental models that support

experimentation and problem solving. In fact, there were several overlapping knowledge domains in which users must have some conceptual knowledge to be able to use the Internet successfully to find academic information.